

What is claimed is:

1. A retroreflective article comprising:  
an elongate carrier; and  
a plurality of discrete segments of retroreflective sheeting disposed on the  
elongate carrier; and  
wherein the discrete segments have a shape and wherein the shape is repeated  
along the elongate carrier.

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10 2. The article of claim 1, wherein:  
the elongate carrier has a first major surface and a second major adhesive  
surface;  
the sheeting has a first major viewing surface, a second major opposing surface,  
and a periphery, the first major viewing surface of the sheeting being  
attached to the second major adhesive surface of the carrier, and  
the carrier extends past the periphery of the discrete segments of retroreflective  
sheeting.

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15 3. The article of claim 1, wherein the plurality of discrete segments form a pattern.

20 4. The article of claim 1, wherein the plurality of discrete segments form a letter.

5. The article of claim 2, wherein  
the first major surface of the carrier comprises a release surface,  
the second major opposing surface of the sheeting comprises an adhesive, and  
the article is provided in the form of a roll and the adhesive surface of the  
sheeting is adjacent the release surface of an adjacent layer of the roll.

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30 6. The article of claim 5, wherein  
the second major surface of the carrier comprises an adhesive,  
the first major viewing surface of the sheeting is attached to the second major  
surface of the carrier with a second adhesion force,  
the sheeting provides a first adhesion force when attached to a substrate, and

the first adhesion force is greater than the second adhesion force.

7. The article of claim 6, wherein the carrier includes a plurality of discontinuities, and wherein the carrier has a strength designed to withstand the second adhesion force.

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8. The article of claim 2, wherein  
the second major opposing surface of the sheeting comprises an adhesive  
adjacent release surface,  
the first major viewing surface of the sheeting is attached to the second major  
10 surface of the carrier with a second adhesion force,  
the sheeting is attached to the release surface with a third adhesion force, and  
the second adhesion force is greater than the third adhesion force.

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9. The article of claim 1, wherein the carrier is extensible and permits the article to  
15 be positioned along an irregular portion of a flexible substrate.

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10. The article of claim 9, wherein the substrate is shaped as a curve.

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11. The article of claim 10, wherein the substrate is shaped as a compound curve.

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12. The article of claim 1, wherein the sheeting comprises prismatic retroreflective  
sheeting.

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13. The article of claim 1, wherein the sheeting comprises encapsulated  
retroreflective sheeting and the edges of the sheeting are sealed.

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14. The article of claim 1, wherein the article is adhered to a flexible substrate.

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15. The article of claim 1, wherein the sheeting segments are between 25 and 75  
mm long and the segments are separated by a gap of at most about 40 percent of the  
segment length.

16. The article of claim 1, wherein the sheeting segments are between 25 and 250 mm long and the segments are separated by a gap of at most about 40 percent of the segment length.

5 17. The article of claim 1, wherein at least some of the plurality of discrete segments have different colors.

10 18. The article of claim 1, and further comprising a plurality of non-retroreflective segments.

19. The article of claim 18, wherein at least some of the non-retroreflective segments are fluorescent.

20. The article of claim 1, wherein at least some of the segments are fluorescent.

15 21. The article of claim 1, wherein at least some of the retroreflective segments have indicia disposed relative to viewing surfaces of the segments.

22. The article of claim 1, wherein the segments are shaped identically.

20 23. The article of claim 1, wherein at least a plurality of the segments are identical.

24. The article of claim 1, wherein the plurality of segments forms a repeating pattern of similarly shaped segments.

25 25. The article of claim 1, wherein the segments are spaced from one another by a distance that is selected to inhibit wrinkling when the article is applied to a substrate and the substrate is bent around a selected radius.

30 26. The article of claim 1, wherein the segments are sized to inhibit wrinkling when the article is applied to a substrate and the substrate is bent around a selected radius.

27. The article of claim 1, wherein materials of the article are chosen to inhibit wrinkling when the article is applied to a substrate and the substrate is bent around a selected radius.

5 28. A retroreflective article comprising:  
an elongate carrier; and  
a plurality of discrete segments of retroreflective sheeting disposed on the  
elongate carrier; and  
wherein the carrier includes a plurality of discontinuities.

10 29. The article of claim 28, wherein the discontinuities comprise elongated slits.

30. The article of claim 28, wherein the discontinuities comprise holes.

15 31. A method of making a retroreflective article, comprising the steps of:  
providing an elongate strip of a retroreflective sheeting on a release liner,  
wherein the sheeting has a first major viewing surface and a second  
major opposing adhesive surface protected by the liner;  
cutting the elongate strip of retroreflective sheeting into smaller discrete  
segments on the liner;

20 156/229 stretching the liner in at least one direction to separate segments; and  
attaching the first major viewing surface of the sheeting to a second major  
surface of an elongate strip of a carrier having a first major surface and  
the second major surface.

25 32. A method of making a retroreflective article, comprising the steps of:  
providing an elongate strip of a retroreflective sheeting on a release liner,  
wherein the sheeting has a first major viewing surface and a second  
major opposing adhesive surface protected by the liner;  
cutting the elongate strip of retroreflective sheeting into smaller discrete  
segments on the liner;

30 removing selected portions of the sheeting to separate the remaining segments;  
and

attaching the first major viewing surface of the sheeting to the second major surface of an elongate strip of a carrier having a first major surface and a second major surface.

5 33. The method of claim 32, and further comprising attaching the first major viewing surface of the selected portions to the second major surface of a second elongate strip of a carrier having a first major surface and a second major surface.

10 34. The method of claim 32, wherein the segments of retroreflective sheeting are separated by a gap of between 4 mm and 100% of a length of the shortest adjacent sheeting segment.

15 35. The method of claim 32, wherein the second major opposing surface of the sheeting comprises an adhesive and the adhesive is protected by a release surface.

20 36. The method of claim 32, wherein the method further includes the steps of providing an elongate strip of a second retroreflective sheeting, cutting the elongate strip of second retroreflective sheeting into smaller discrete segments, and attaching the discrete segments of retroreflective sheeting to the carrier.

25 37. The method of claim 32, and further comprising the steps of: cutting a non-retroreflective sheeting into smaller discrete segments; and adhering the non-retroreflective sheeting segments to the liner.

30 38. The method of claim 37, wherein at least some of the non-retroreflective sheeting are fluorescent.

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39. The method of claim 32 wherein at least some of the retroreflective segments are fluorescent.

40. The method of claim 39, wherein the retroreflective sheeting and second retroreflective sheeting are alternated along the carrier.

41. A method of making a retroreflective article, comprising the steps of:  
unwinding a continuous strip of retroreflective sheeting;  
sealing crossweb lines;  
cutting through the crossweb lines; and  
5 adhering cut pieces to an elongate release liner, wherein the cut pieces are  
spaced from one another on the elongate release liner.

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42. A method of applying a retroreflective article to a flexible substrate, comprising  
the steps of:  
10 providing an elongate strip of an article having (i) a carrier with a first major  
surface and a second major surface and (ii) a plurality of discrete  
segments of a retroreflective sheeting having a first major viewing  
surface and a second major opposing adhesive surface protected by a  
release surface, wherein the first major viewing surface of the sheeting is  
15 attached to the second major surface of the carrier;  
exposing the second major opposing adhesive surface of the sheeting; and  
applying the adhesive surface of the sheeting to the flexible substrate to thereby  
adhere the sheeting to the substrate.

20 43. The method of claim 42, wherein exposing the second major surface comprises  
unrolling a roll containing the plurality of discrete segments.

44. The method of claim 42, wherein the exposing the second major surface  
comprises removing a release liner prior to applying the retroreflective article.

25 45. The article of claim 42, and further comprising partially tearing the carrier along  
a plurality of discontinuities during the step of applying the adhesive surface of the  
sheeting to the flexible substrate.

30 46. The method of claim 42, further comprising the additional step of: removing the  
carrier from the applied article to thereby expose the first major viewing surface of the  
sheeting.

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47. The method of claim 46, wherein the carrier is extensible and permits the article to be positioned along an irregular surface of a substrate or along a curved path.

48. A retroreflective article, comprising:  
5 an elongate carrier having a first major surface and a second major adhesive surface; and  
a plurality of discrete segments of retroreflective sheeting disposed on the elongate carrier, the segments being spaced apart from one another to prevent contacting one another while the article is bent a predetermined 10 amount.

49. The article of claim 48, wherein the sheeting comprises prismatic retroreflective sheeting.

15 50. The article of claim 48, wherein the sheeting comprises encapsulated retroreflective sheeting and the edges of the sheeting are sealed.

51. The article of claim 48, wherein the sheeting comprises beaded retroreflective sheeting.

20 52. The article of claim 48, wherein the article is adhered to a vehicle.

53. A method of applying a retroreflective article to a flexible substrate, comprising the steps of:

25 providing an elongate strip of a conspicuity article having (i) a carrier with a first major surface and a second major surface and (ii) a plurality of discrete segments of a retroreflective sheeting having a first major viewing surface and a second major opposing adhesive surface including a tackifier and being protected by a release surface, wherein the first major viewing surface of the sheeting is attached to the second major 30 surface of the carrier;  
exposing the second major opposing adhesive surface of the sheeting; and applying the adhesive surface of the sheeting to the flexible substrate.

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54. The method of claim 53, wherein the adhesive comprises a hot melt adhesive.

55. A retroreflective article for use with a flexible substrate having an anticipated bend radius, the article comprising:  
5 an elongate carrier; and  
a plurality of discrete segments of retroreflective sheeting disposed on the  
10 elongate carrier, wherein each segment has a length that is selected to  
prevent wrinkling when the article is bent at to the anticipated bend  
radius.

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56. The article of claim 55, wherein the sheeting comprises prismatic retroreflective sheeting.

57. The article of claim 55, wherein the sheeting comprises encapsulated  
retroreflective sheeting and the edges of the sheeting are sealed.

58. The article of claim 55, wherein the article is adhered to a vehicle.

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59. The article of claim 55, wherein the article is adhered to a traffic cone.

60. The article of claim 55, wherein the article is adhered to a traffic barrel.

61. The article of claim 55, wherein the article is adhered to a garment.

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62. A retroreflective article for use on a flexible substrate, the article comprising:  
a common carrier; and  
a plurality of discrete retroreflective sheeting segments forming a repetitive  
sequential linear pattern and secured in alignment on the common  
30 carrier, wherein the common carrier is affixed to a front face of each  
segment.

63. A retroreflective article having a neutral axis a distance  $y_n$  from a first major surface of the final article, and adapted for attachment to a flexible substrate having an anticipated bend radius (r), the article comprising:

5 an elongate carrier;  
a plurality of discrete segments (of length l) of retroreflective sheeting disposed on the elongate carrier; and

wherein the discrete segments are spaced apart by a distance at least  $\frac{y_n}{r} \times l$ .

64. A retroreflective article having an extensional stiffness, A, bending rigidity, D, and a neutral axis a distance  $y_n$  from a first major surface of the final article, and adapted for attachment to a flexible substrate having an anticipated bend radius (r), the article comprising:

10 an elongate carrier;  
a plurality of discrete segments (of length l) of retroreflective sheeting disposed on the elongate carrier; and

15 wherein l is selected based upon calculating  $\sqrt{\left(\frac{D}{A}\right)\left(\frac{r}{y_n}\right)}$ .

65. A method of applying a retroreflective article to a substrate, comprising the steps of:

20 providing an elongate strip of a conspicuity article having (i) an extensible carrier with a first major surface and a second major surface and (ii) a plurality of discrete segments of a retroreflective sheeting having a first major viewing surface and a second major opposing adhesive surface being protected by a release surface, wherein the first major viewing surface of the sheeting is attached to the second major surface of the carrier;  
25 exposing the second major opposing adhesive surface of the sheeting; and applying the adhesive surface of the sheeting to the substrate while stretching the carrier to direct application of the segments upon the substrate.

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